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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/686,225	10/15/2003	Victor A. Bennett	CP-3	6343

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EXAMINER
CAO, PHUONG THAO

ART UNIT	PAPER NUMBER
2164	

DATE MAILED: 04/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<table>
<tr><td rowspan="2">Office Action Summary</td><td>Application No.</td><td>Applicant(s)</td></tr>
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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>15 October 2003</u>.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-18</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-18</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>15 October 2003</u> is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   This action is in response to Application filed on 10/15/2003.

2.   Claims 1-18 are pending.

Claim Objections

3.   Claims 1-9 are objected because of the following informalities:

Regarding claim 1, "the parse" in line 6 should be changed to "the parser" and "schedules" should be changed to "scheduling" for consistency purpose. Claim 1 recites "statement" in line 2 but "statements" in other places. Appropriate corrections are required.

Claims 2-9 are objected as incorporating the deficiencies of claim 1 upon which they depend.

Claim 10 recites "data flow engine" in line 1 but "data flow processor" in line 3. Appropriate correction is required.

Claims 11-18 are objected as incorporating the deficiencies of claim 10 upon which they depend.

Claim Rejections - 35 USC § 112

4.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5.   Claims 2, 9, and 11-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 recites the limitation "the form". There is insufficient antecedent basis for this limitation in the claim. Appropriate correction is required.

Claims 9 and 18 recite "wherein the execution tree processor *may* call routines from an external microprocessor" which renders these claims indefinite. It is unclear as to whether or not the limitation following the phrase *may* is a required functionality of the claimed subject matter. Appropriate corrections are required.

Claims 11-18 recite the limitation "the hardware database management system of claim 10". There is insufficient antecedent basis for this limitation in these claims since claim 10 claims "A data flow engine". Appropriate corrections are required.

Claims 13, 16 and 18 recite the limitation "execution tree processor". There is insufficient antecedent basis for this limitation in these claims. Appropriate corrections are required.

Double Patenting

6.   The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned ,

with this application, or claims an invention made as a result of activities undertaken within the

scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal

disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR

3.73(b).

7.   Claims 1, 2 and 6-9 are provisionally rejected on the ground of nonstatutory obviousness-

type double patenting as being unpatentable over current claims 1-4 and 6-8 of copending

Application No. 10/741,332. Although the conflicting claims are not identical, they are not

patentably distinct from each other.

Claims 1-4 and 6-8 of Application No. 10/741,332 recite method performed by the

system of claims 1, 2 and 6-9 of the instant application. It would be obvious to a person having

ordinary skill in the art to include hardware such as a parser and an execution tree processor to

perform the method of claims 1-4 and 6-8 of Application No. 10/741,332 since a method cannot

run without hardware. Claims 1, 2 and 6-9 of the instant application therefore are not patently

distinct from the earlier application claims and as such are unpatentable over obvious-type

double patenting.

This is a <u>provisional</u> obviousness-type double patenting rejection because the conflicting

claims have not in fact been patented.

8.   Claim 1 is provisionally rejected on the ground of nonstatutory obviousness-type double

patenting as being unpatentable over claim 2 of copending Application No. 10/712,644.

Although the conflicting claims are not identical, they are not patentably distinct from each

other.

        Claim 2 of Application No. 10/712,644 contains every element of claim 1 of the instant

application and thus anticipate claim 1 of the instant application. Claim 1 of the instant

application therefore is not patently distinct from the earlier application claim and as such is

unpatentable over obvious-type double patenting. A later application claim is not patentably

distinct from an earlier claim if the later claim is anticipated by the earlier claim.

        This is a <u>provisional</u> obviousness-type double patenting rejection because the conflicting

claims have not in fact been patented.

Claim Rejections - 35 USC § 102

9.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

    A person shall be entitled to a patent unless –

    (e) the invention was described in (1) an application for patent, published under section 122(b), by another
    filed in the United States before the invention by the applicant for patent or (2) a patent granted on an
    application for patent by another filed in the United States before the invention by the applicant for patent,
    except that an international application filed under the treaty defined in section 351(a) shall have the effects
    for purposes of this subsection of an application filed in the United States only if the international
    application designated the United States and was published under Article 21(2) of such treaty in the English
    language.

10.   Claims 1-18 are rejected under 35 U.S.C. 102(e) as being anticipated by <u>Andrei</u>

(Publication No. US 2003/0172059).

        As to claim 1, <u>Andrei</u> teaches:

"A hardware database management system for managing and manipulating information stored in

a database using standardized database statement" (see Abstract and [0062]-[0064]), the

hardware database management system comprising:

        "a parser receiving the standardized database statements and converting the standardized

database statements into executable instructions and data objects" (see [0067] wherein query

tree, which can be converted by the code generator into a set of instructions suitable for

satisfying the query, is equivalent to <u>Applicant</u>'s "executable instruction", and nodes of query

tree are equivalent to <u>Applicant</u>'s "data objects");

        "an execution tree processor connected to the parser and receiving the executable

instruction from the parser, the execution tree processor creating execution tree from the

executable instructions and schedules the execution trees for execution" (see [0069], [0070],

[0081] and [0032] wherein execution unit combined with normalizer and optimizer is equivalent

to <u>Applicant</u>'s "execution tree processor" and query execution plan is equivalent to <u>Applicant</u>'s

"execution tree"); and

        "a graph engine connected to the execution tree processor, the graph engine operable to

manipulate the database as required by the executable instruction" (see [0070] and [0066]

wherein the part of the system which handles lower-level routines to access and manipulate the

database as disclosed is equivalent to <u>Applicant</u>'s "graph engine").

As to claim 2, this claim is rejected based on arguments given above for rejected claim 1

and is similarly rejected including the following:

Andrei teaches:

"wherein information in the database is represented in memory in the form of graphs"

(see [0020], [0029] wherein query execution plan including information in the database which is

implemented as a directed acyclic graph in a plan cache wherein cache is memory, as illustrated

in Applicant's claim language).

As to claim 3, this claim is rejected based on arguments given above for rejected claim 1

and is similarly rejected including the following:

Andrei teaches:

"wherein the execution tree processor is further operable to validate the executable

instructions received from the parser" (see [0068]-[0070] wherein execution unit combined with

normalizer and optimizer is equivalent to Applicant's "execution tree processor", and query tree,

which can be converted by the code generator into a set of instructions suitable for satisfying the

query, is equivalent to Applicant's "executable instructions").

As to claim 4, this claim is rejected based on arguments given above for rejected claim 1

and is similarly rejected including the following:

Andrei teaches:

"wherein the execution tree processor is further operable to ensure data integrity in the database and to control access to restricted information in the database" (see [0068]-[0070] wherein execution unit combined with normalizer and optimizer is equivalent to Applicant's "execution tree processor").

As to claim 5, this claim is rejected based on arguments given above for rejected claim 1 and is similarly rejected including the following:

Andrei teaches:

"wherein the execution tree processor further comprises at least one function engine, the function engine operable to perform functions in accordance with the executable instructions" (see [0070] and [0066] wherein the part of the system which handles access methods to the database is equivalent to Applicant's "function engine").

As to claim 6, this claim is rejected based on arguments given above for rejected claim 1 and is similarly rejected including the following:

Andrei teaches:

"wherein the standardized database statements are Structured Query Language statements" (see [0066] and [0067]).

As to claim 7, this claim is rejected based on arguments given above for rejected claim 1 and is similarly rejected including the following:

Andrei teaches:

"wherein the execution tree processor is further operable to continually optimize the execution trees" (see [0069] and [0070] wherein execution unit combined with normalizer and optimizer is equivalent to Applicant's "execution tree processor").

As to claim 8, this claim is rejected based on arguments given above for rejected claim 1 and is similarly rejected including the following:

Andrei teaches:

"wherein manipulating of the database by the graph engine includes reading information from the database, writing information into the database and altering information in the database" (see [0070] and [0066] wherein the part of the system which handles lower-level routines to access and manipulate the database is equivalent to Applicant's "graph engine").

As to claim 9, this claim is rejected based on arguments given above for rejected claim 1 and is similarly rejected including the following:

Andrei teaches:

"wherein execution tree processor may call routines from an external microprocessor" (see [0070], [0056] and [0063]).

As to claim 10, Andrei teaches:

"A data flow engine for implementing a database management system in hardware, the database management system operable to process standardized database statements against a database of

information" (see Abstract, [0062]-[0064] and [0080] wherein query execution engine is

equivalent to <u>Applicant</u>'s "data flow engine"), the data flow engine processor comprising:

"a parsing engine operable to convert the standardized database statements into

executable instructions" (see [0067] wherein parser is equivalent to <u>Applicant</u>'s "parsing engine

and wherein query tree, which can be converted by the code generator into a set of instructions

suitable for satisfying the query, is equivalent to <u>Applicant</u>'s "executable instructions");

"an execution engine receiving the executable instruction from the parsing engine, the

execution engine validating the executable instructions, and building execution trees to schedule

the executable instructions, the execution engine further operable to ensure the integrity of the

information in the database and to control access to restricted information in the database" (see

[0068]-[0070], [0081] and [0032] wherein execution unit combined with normalizer and

optimizer is equivalent to <u>Applicant</u>'s "execution engine", query tree is equivalent to <u>Applicant</u>'s

"executable instructions" and query execution plan is equivalent to <u>Applicant</u>'s "execution

tree");

"a graph engine operable to execute the executable instructions that require the

manipulation of the information in the database" (see [0070] and [0066] wherein the execution

unit and the part of the system which handles lower-level routines as disclosed is equivalent to

<u>Applicant</u>'s "graph engine").

As to claim 11, this claim is rejected based on arguments given above for rejected claim

10 and is similarly rejected including the following:

<u>Andrei</u> teaches:

"wherein the information in the database is stored in random access memory accessible to the graph engine" (see [0070] and [0051] wherein the execution unit and the part of the system which handles lower-level routines as disclosed is equivalent to Applicant's "graph engine").

As to claim 12, this claim is rejected based on arguments given above for rejected claim 10 and is similarly rejected including the following:

Andrei teaches:

"wherein the database is represented in memory attached to multiple data flow engines and wherein the data flow engine may access information by sending requests to a second data flow engine" (see [0062]-[0067] wherein the disclosure of network of database servers wherein each engine of the database server system is equivalent to Applicant's "data flow engine" implies the connecting between database to multiple database servers and sending requests between servers in Client/Server environment, as illustrated in Applicant's claim language).

As to claim 13, this claim is rejected based on arguments given above for rejected claim 10 and is similarly rejected including the following:

Andrei teaches:

"wherein the execution tree processor further comprises at least one function engine, the function engine operable to perform functions in accordance with the executable instructions" (see [0070] and [0066] wherein the part of the system which handles access methods to the database is equivalent to Applicant's "function engine").

As to claim 14, this claim is rejected based on arguments given above for rejected claim 10 and is similarly rejected including the following:

Andrei teaches:

"wherein the standardized database statements are Structured Query Language statements" (see [0066] and [0067]).

As to claim 15, this claim is rejected based on arguments given above for rejected claim 10 and is similarly rejected including the following:

Andrei teaches:

"wherein the standardized database statements are Xtensible Markup Language" (see [0063] and [0074]).

As to claim 16, this claim is rejected based on arguments given above for rejected claim 10 and is similarly rejected including the following:

Andrei teaches:

"wherein the execution tree processor is further operable to continually optimize the execution trees" (see [0069] and [0070] wherein execution unit combined with normalizer and optimizer is equivalent to Applicant's "execution tree processor").

As to claim 17, this claim is rejected based on arguments given above for rejected claim 10 and is similarly rejected including the following:

Andrei teaches:

"wherein manipulating of the database by the graph engine includes reading information from the database, writing information into the database and altering information in the database" (see [0070] and [0066] wherein the part of the system which handles lower-level routines to access and manipulate the database is equivalent to Applicant's "graph engine").

As to claim 18, this claim is rejected based on arguments given above for rejected claim 10 and is similarly rejected including the following:

Andrei teaches:

"wherein execution tree processor may call routines from an external microprocessor" (see [0070], [0056] and [0063]).

11.   The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

Liang et al. (Publication No. US 2004/0015486) teach a system and method for storing and retrieving data for graph data structures.

Goldberg et al. (US Patent No 5,201,046) teach an improved database system stores, retrieves and manipulates directed graph data structure in a relational database.

Contreras et al. (US Patent No 6,823,299) teach a directed multiple graph engine in a graphics computer program processes the directed multi-graphs wherein each node in the graph performs some specific function and the edges define relationships between the nodes.

Obendorf (Publication No. US 2001/0056426) teaches method, apparatus and article of manufacture for instantiation and initialization of objects from a relational store.

Raboczi et al. (Publication No. US 2003/0074352) teach a secure distributed database management query system including one or more knowledge stores holding data in the form of statements that represent relationship between nodes in a directed graph data structure.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuong-Thao Cao whose telephone number is (571) 272-2735. The examiner can normally be reached on 8:30 AM - 5:00 PM (Mon - Fri).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Rones can be reached on (571) 272-4085. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PTC

April 6, 2006

Primary Examiner
Art Unit 2167